

Additional Records and Notes on *Conus* (Mollusca: Gastropoda) in Hawaii

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SINCE PUBLICATION of a descriptive account of the species of *Conus* in Hawaii (Kohn, 1959) several additional species have been collected, and study of additional material has led to the discovery of a major error in the previous report. We correct this error here, discuss the recently discovered species, and provide new information on appearance of soft parts, maximum size, and vertical distribution of several species.

The Pele Expedition of May–Sep 1959 dredged from sites off Oahu and Maui much of the material reported on here.

The descriptive terminology in this paper follows Cox (1960). Names of colors of shells are those of the Inter-Society Color Council–National Bureau of Standards (ISCC–NBS) (Kelly and Judd, 1955), obtained with the standards of Ridgway (1912). Colors of soft parts in life are subjective and were not compared with standards.

Conus abbreviatus Reeve

Conus abbreviatus Reeve, 1843. Conch. Icon. 1: pl. 16, sp. 86.

C. abbreviatus has been considered (Kohn, 1959) endemic to the Hawaiian archipelago. We know of no reports in the literature of specimens from elsewhere, and none are present in the large collections of Indo–West Pacific molluscs in the major museums of Washington, Philadelphia, Cambridge, San Francisco, Honolulu, London, Cardiff, Copenhagen, Geneva, Paris, Vienna, Brussels, and Stockholm.

In April 1958, Mr. Harold G. Jewell collected a living specimen of *C. abbreviatus*, measuring 22×15 mm, in 1–3 m of water offshore from the cable station at Fanning Island, more than 900 miles south of Hawaii. Although stable

populations do not appear to be maintained in the Line Islands, *C. abbreviatus* should no longer be regarded as endemic to the Hawaiian Islands.

Note added 16 Feb 1962: In June 1961, Mr. John H. Roberts, Jr., collected a living specimen of *C. abbreviatus*, measuring 22×16 mm, that was burrowing in sand in a tidal channel at a depth of 1 m at Eniwetok Island, Eniwetok Atoll, Marshall Islands, more than 2,500 miles from Hawaii.

Conus acutangulus Lamarck

Fig. 1a–b

Conus acutangulus Lamarck, 1810. Ann. Mus. Hist. Nat., Paris, 15: 286.

In the synonymy of this species in the earlier report (Kohn, 1959) *Conus eugrammatus* Bartsch and Rehder (1943) is listed incorrectly as a junior synonym. It is now known to be a distinct species and is discussed in detail below.

We have had the opportunity to examine living specimens of *C. acutangulus* collected by the Pele Expedition. In these the periostracum is very thin, translucent, smooth, and brown, not grayish white as indicated from long-dead specimens by Kohn (1959). The anterior portion of the sole of the foot is buff and the posterior half is light purplish brown. The siphon is buff at the tip and darker tan proximally. The rostrum is buff. Further descriptive information on the shell is given in the remarks under *C. eugrammatus* below, in which the two species are compared.

The depth range of *C. acutangulus* given previously (Kohn, 1959) erroneously included some records of *C. eugrammatus*. *C. acutangulus* has been collected alive off the south coast of Oahu (USNM 338566, 338567, 338568, Pele Expedition) and off Lahaina, Maui (USNM 338569, Pele Expedition), mainly in depths of 8–100 m, although some Pele Expedition specimens are labeled “35–75 fathoms.”

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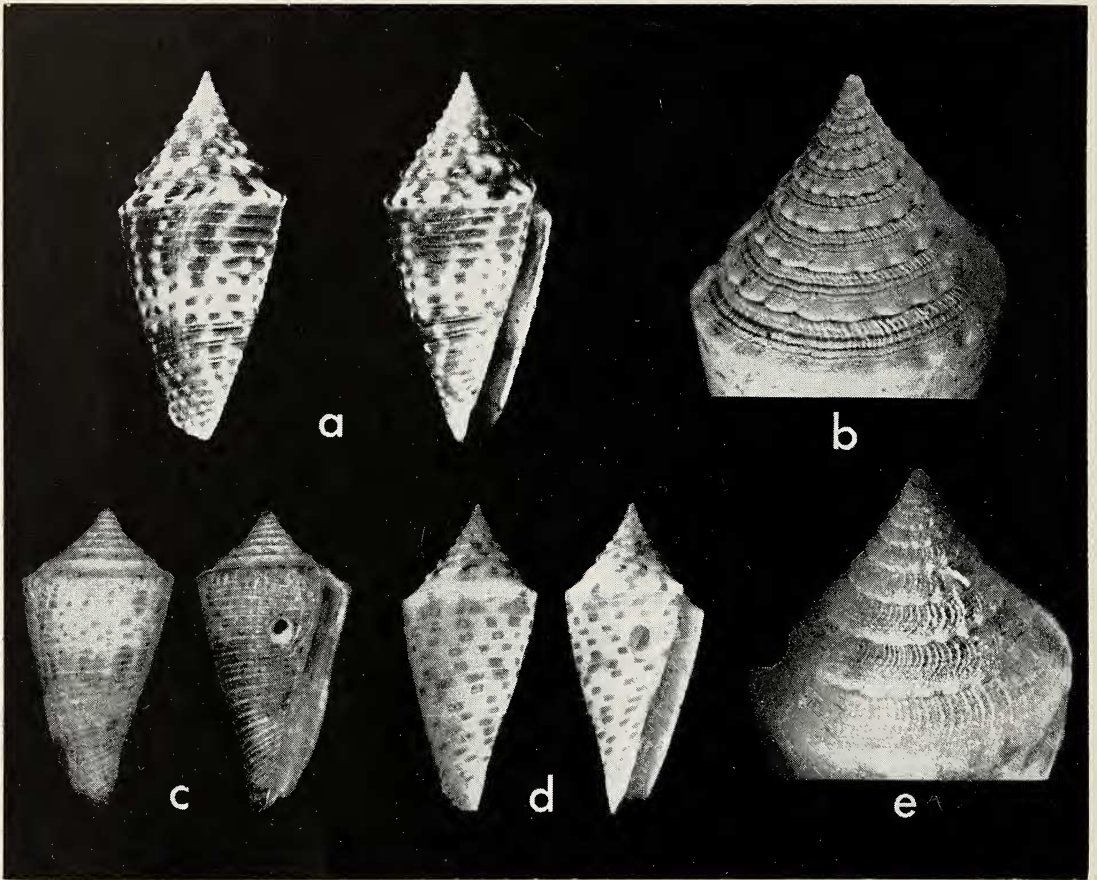


FIG. 1. *a-b*, *Conus acutangulus* Lamarck. *a*, Specimen collected by Pele Expedition, off Keehi Lagoon, Oahu, 70–150 m; 24×11.4 mm. *b*, Detail of spire; USNM 338568, off Pearl Harbor, Oahu, 25–50 m. *c-e*, *C. eugrammatus* Bartsch and Rehder. *c*, Holotype, USNM 173213, Molokai, 30×16 mm; *d*, specimen collected by Pele Expedition, off Keehi Lagoon, Oahu, 150 m, 21.5×10 mm; *e*, detail of spire of specimen shown in *d*. *b*, *e*, Treated with NH_4Cl , after Glaessner (1947).

Conus capitaneus Linnaeus

Conus capitaneus Linnaeus, 1758. Syst. Nat., ed. 10, p. 713.

The smaller shell illustrated in figure 2 of Kohn (1959) was misidentified as a young specimen of *C. capitaneus*. This specimen is now known to be a young *C. vexillum* Gmelin, as is discussed below under that species. *C. capitaneus* is thus known in Hawaii from only one specimen, which was collected alive and is the larger shell shown in figure 2 of Kohn (1959).

Conus circumactis Iredale

Conus circumactis Iredale, 1929. Mem. Queensland Mus. 9: 281.

Visible portions of the foot of living specimens are now known to be pale lemon yellow.

Conus eugrammatus Bartsch and Rehder Fig. 1c-e

Conus eugrammatus Bartsch and Rehder, 1943. Proc. Biol. Soc. Wash. 56: 85.

Conus eugrammatus Dall, Bartsch and Rehder. Greene, 1953, Ann. Rept. Amer. Malacol. Union Bull. 20: 28.

? *Asprella wakayamensis* Kuroda, 1956. Venus, Jap. Jour. Mal. 19: 9, pl. 1, fig. 2.

DESCRIPTION: Shell small, rather thin. Last whorl elongate; sides nearly straight; a few closely spaced spiral striae near the shoulder, followed abapically by spiral, punctured grooves separated by broad, flat ridges evenly spaced adapically but more closely and unequally spaced basally. Aperture narrow; outer lip protracted. Shoulder angular; spire elevated, occupying 20–33% of total shell length, turreted, slightly concave, marked by rather weak, slender, pro-axially curved (opisthocyr) axial riblets and obscure striae (Fig. 1e). Early (4–6) whorls weakly nodulose, later whorls smooth (Fig. 1c–e). Last whorl white, marked with strong yellowish-brown subquadrate spots mainly confined to the ridges and variably widely spaced (Fig. 1d), or condensed to form two or three interrupted spiral bands (Fig. 1c). Spire marked with widely spaced strong brown irregular or subquadrate spots. Periostracum very thin, yellowish-brown, translucent, smooth.

LENGTH: To 31 mm.

HOLOTYPE: USNM 173213; 30 × 16 mm; Fig. 1c.

TYPE LOCALITY: "Albatross" sta. 3889, off north coast of Molokai near Mokapu Islet.

REMARKS: Re-examination of the holotype and other specimens in the U.S. National Museum, as well as of material collected by the Pele Expedition, has led to the conclusion that *C. eugrammatus* and *C. acutangulus* are distinct species.

The most pronounced differences in the shells are as follows: In *C. acutangulus* the sculpture of the spire consists of >-shaped axial riblets intersected by a spiral stria at the point of the > and one or two others toward the shoulder (Fig. 1b). All whorls are nodulose or subcoronate, although coronation of the last whorl may be obsolete (Fig. 1a–b). In *C. eugrammatus* the spiral sculpture is weaker. Most prominent are slender, pro-axially curved axial riblets (Fig. 1e). The early whorls (first 4–6) are subcoronate; the later whorls are smooth. The height of the spire of 15 specimens of *C. acutangulus* ranged from

29 to 45% of the total shell length and averaged 37%. The range in 10 specimens of *C. eugrammatus* was 20–33% and the average was 29%. The difference is significant at the .01 level of probability (Wilcoxon test; Tate and Clelland, 1957).

In both species, the last whorl is engraved with many distinct, rather broad, punctured spiral grooves. In *C. acutangulus*, the grooves and the intervening broad, flat ridges are of uniform width over the adapical half of the last whorl (Fig. 1a). In *C. eugrammatus*, a few closely spaced spiral striae precede the typical sculpture at the adapical part of the last whorl (Fig. 1c–d).

The ground color of the shells of both species is white. In *C. acutangulus*, the last whorl bears broad moderate brown axial markings, which may form two poorly defined, interrupted spiral bands at either side of the center. Rows of distantly spaced spots of the same color on the ridges mark the areas between and outside the bands (Fig. 1a). In *C. eugrammatus*, the markings on the body whorl consist mainly of strong yellowish-brown subquadrate spots confined to the ridges, but these may be condensed centrally and near the shoulder and base to form two or three spiral bands (Fig. 1c). Freshly collected specimens of *C. acutangulus* (Fig. 1a) in general are more darkly colored and show less of the white ground than do those of *C. eugrammatus* (Fig. 1d). In both species, the color pattern of the spire resembles that of the last whorl.

C. eugrammatus was described from specimens dredged by the U.S. Bureau of Fisheries steamer "Albatross" in 106–422 m. This material consists of five specimens, of which four were certainly dead when collected, from off the north coast of Molokai, off the south coast of Oahu, and in the Pailolo Channel, near Maui (USNM 173213, 190415, 205998, 335304). One specimen (USNM 190415) may well have been alive when collected, but this is not certain. The Pele Expedition obtained two empty shells at depths of 140–160 m off Keehi Lagoon, Oahu.

Although in general the records of *C. eugrammatus* are from deeper water than those of *C. acutangulus*, dead shells do not reliably indicate the habitat of the living gastropod. Unfortunately, the depth of the only "Albatross" specimen which may have been collected alive is

given only as "211-53 fathoms." All other shells of *C. eugrammatus* seen by us were drilled by boring gastropods, apparently of the families Naticidae and Muricidae.

We have not thoroughly searched the vast literature to determine if an earlier name is available for *C. eugrammatus* among the more than 2,700 previously described species of *Conus*. In addition to *C. acutangulus*, *C. praececlens* Adams (1853; = *C. sowerbii* Reeve, 1849?) is similar in form. It differs in having no nodules on the early whorls, more pronounced spiral striae, and weaker, protraxially curved axial riblets on the spire, and a higher ratio of spire height to total length (average of 12 specimens, 41%; range, 37-46%).

Note added 16 Feb 1962: A living specimen of *C. eugrammatus* was dredged at a depth of 400 m on a mud-sand bottom 1 mile SSW of Pearl Harbor, Oahu, on 3 Jan 1962, by Mrs. Mary Eleanor King and Dr. C. M. Burgess, who have kindly permitted examination. The shell measures 36.5×15 mm and is thus the largest known specimen of the species. The spire bears a cheilostome ectoproct colony and a homotremid foraminiferan, suggesting that the animal does not burrow completely beneath the surface of the substrate in life. The shell and periostracum agree with the description above, but near the growing edge of the shell the periostracum bears densely spaced axial lamellae continued on the spire. The soft parts have retained little color in alcohol, but the siphon appears to have been light orange. The unguulate operculum measures 4.4×1.7 mm.

Conus litoglyphus Hwass in Bruguière

Conus litoglyphus Hwass in Bruguière, 1792.
Enc. Méth. Vers 1: 692, pl. 338, fig. 8.

Living specimens observed by one of us (C.S.W.) have the sole and the dorsal margin of the foot olive green mottled with black; the rest of the foot is olive green. The siphon, rostrum, and tentacles are black.

Conus marmoreus Linnaeus

Conus marmoreus Linnaeus, 1758. Syst. Nat., ed. 10, p. 712.

Conus bandanus Hwass in Bruguière, 1792.
Enc. Méth. Vers 1: 611, pl. 318, fig. 5.

Several living specimens of the Hawaiian form of this species (*C. marmoreus bandanus* Hwass in Bruguière, 1792) recently examined by one of us (C.S.W.) have the sole of the foot cream tinted with pale tan and the dorsum of the foot cream mottled with tan and brown. The siphon is banded proximally from the tip with white, dark brown, and white bands, and a half band of tan. The rostrum is cream mottled with brown and the tentacles cream tipped with brown.

Conus moreleti Crosse

Conus moreleti Crosse, 1858. Rev. Mag. Zool., ser. 2, 10: 122.

Living specimens of *C. moreleti* observed by us have the upper portion of the foot brownish red, mottled with brown and tipped with vermilion. The rest of the foot and the rostrum are light yellowish brown mottled with darker brown. The tip of the siphon is vermilion or yellow, followed proximally by black and yellow or vermilion bands; the rest of the siphon is yellow mottled with black. The tentacles are white or pale yellow.

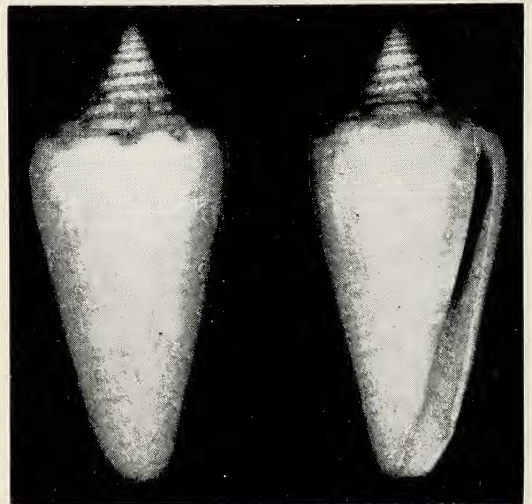


FIG. 2. *Conus suturatus* Reeve, var.? Collected by Pele Expedition, off Keehi Lagoon, Oahu, 200 m, 39×17 mm.

Conus obscurus Sowerby

Conus obscurus Sowerby, 1833. Conch. Illus., p. 2, pt. 29, fig. 26.

Living specimens observed by one of us (C.S.W.) have the sole of the foot flesh color tinged with pale brown. The dorsum of the foot, siphon, and rostrum are flesh color tinged with darker brown, and the tentacles are white.

Conus pertusus Hwass in Bruguière

Conus pertusus Hwass in Bruguière, 1792. Enc. Méth. Vers 1: 686, pl. 336, fig. 2.

Living specimens observed by us have the foot, siphon, rostrum, and tentacles pale golden yellow, sparsely speckled with black. The black specks are denser at the dorsal margin of the foot and the base of the siphon. The periostracum is very thin, translucent, and almost colorless. It is ornamented with widely spaced spiral ridges bearing small tufts of hairs.

Conus suturatus Reeve

Conus suturatus Reeve, 1884. Conch. Icon. 1: pl. 45, sp. 250; suppl. pl. 3, fig. 250b.

The Pele Expedition dredged more than 100 specimens of *C. suturatus* in depths of 40–150 m off Keehi Lagoon, Oahu, in Aug 1959.

In addition, an unusual empty shell dredged in 200 m on a mud substratum off Keehi Lagoon in Aug 1959 may be referable to this species. It measures 39 × 17 mm and is shown in Figure 2. The spire is concave, much more elevated, and at a more acute angle than in typical *C. suturatus*. The early whorls are turreted and somewhat more prominently nodulose than they are in typical specimens. The marked elevation of the spire apparently has caused a reduced diameter of the shell, which is much narrower than in typical specimens with lower, nonturreted spires (Kohn, 1959: pl. 2, figs. 24–28). The spire is deeply striate and ridged as in typical *C. suturatus*. The spiral sculpture of the last whorl is within the range of variation of *C. suturatus*.

The color pattern of the spire is identical with that of smaller typical specimens of *C. suturatus*. The color pattern of the last whorl appears

somewhat faded to moderate orange yellow. It consists of interrupted spiral rows of quadrangular markings on a white ground. Some of the markings appear fused axially into larger spots. This pattern is typical of most smaller specimens of *C. suturatus* from Hawaii (Kohn, 1959: pl. 2, fig. 24), but the broad spiral bands characteristic of most larger specimens are not visible in the specimen under discussion. It is referred to *C. suturatus* with uncertainty.

In living *C. suturatus*, the siphon bears three broad bands of white, black, and tan from the tip proximally. The rostrum and tentacles are buff. The upper portion of the foot is white mottled with brown, but there is a narrow darker band near the posterior end.

Conus vexillum Gmelin

Fig. 3

Conus vexillum Gmelin, 1791. Syst. Nat., ed. 13, p. 3397.

Recent collections of many small specimens of *C. vexillum* in Hawaii have permitted an appreciation of changes in shell color pattern with increasing size and age. Figure 3 illustrates the progression from juvenile to definitive pattern. The ground color changes from dark yellow (Fig. 3a) through light olive (Fig. 3b), moderate olive (Fig. 3c), and light olive brown (Fig. 3d), to light yellowish brown (Fig. 3e). White spiral bands at the shoulder and centrally on the last whorl become more prominent with increasing size. The darker spots of smaller specimens (Fig. 3a–b) and irregular markings of larger ones (Fig. 3c–e) are dark brown. In life the foot of juveniles is yellow, becoming yellowish green, olive green, and greenish black with increasing size.

The smaller specimen figured for *C. capitaneus* Linnaeus in Kohn (1959: fig. 2, left) is actually *C. vexillum*. It is intermediate in size between the specimens shown here in Figure 3a, b. The spire of *C. capitaneus* of similar size is more densely and regularly tessellated with brown. The spiral striae in *C. capitaneus* number 3–4 per whorl and are widely spaced; in *C. vexillum* there are usually 6–7 fine, closely spaced striae per whorl.

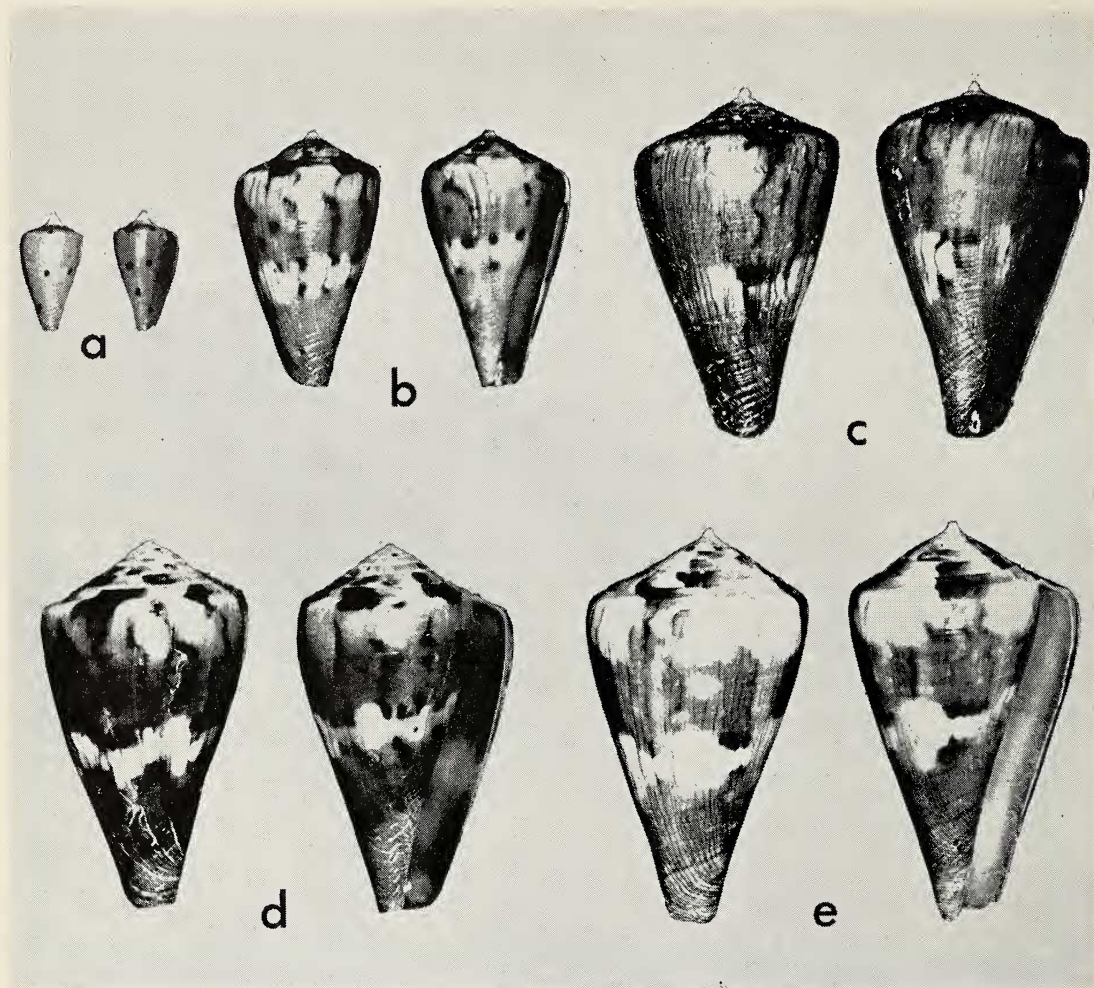


FIG. 3. *Conus vexillum* Gmelin, showing change of shell color pattern with increasing size. *a*, 9.5×5 mm, Kailua, Oahu, 17 m; collected by C.S.W. *b*, 21×12 mm, Makua, Oahu, 7 m, coll. D. Wellington. *c*, 28.5×17 mm, Pokai Bay, Oahu, 15 m, coll. E. Harrison. *d*, 29×18 mm, Rabbit Island, off Oahu, 9 m, coll. C.S.W. *e*, 32×19 mm, Rabbit Island, off Oahu, 9 m, coll. C.S.W.

Conus sp. cf. *C. cumingii* Reeve
Fig. 4

Conus cumingii Reeve, 1848. Conch. Icon., 4: suppl. pl. 3, sp. 282 (non *C. cumingii* Reeve, 1849. Conch. Icon., 5: suppl. pl. 8, sp. 277).

The Pele Expedition dredged about 50 living specimens of a species of *Conus* not previously known to occur in Hawaii, in 70–200 m, chiefly on coral rubble substratum off Keehi Lagoon, Oahu.

This species is extremely variable in sculpture and color pattern; some of the variation is correlated with size and, presumably, with age (Fig. 4). At the present time, we are unable to provide a specific identification of this species. It resembles very closely the little-known species *C. cumingii* Reeve (1848; described from the Philippines). The main difference is in the more elevated spire of the shell of *C. cumingii*, which was described as "smooth or obsoletely finely ridged, spire peculiarly grooved and punctured; reddish olive, with a central band, spire and

upper edge of the whorls white, conspicuously painted with interrupted lineated chestnut blotches; apex pink" (Reeve, 1848).

The last whorl of some specimens of *Conus* sp. is smooth, i.e., bearing fine spiral striae and/or lirae visible only under magnification, except near the base (Fig. 4*a,d,e,b,j,k*). Other specimens are partly (Fig. 4*f,i*) or entirely (Fig. 4*b,c,g*) encircled by granular spiral lirae. The puncturing of the spire described is due, as Weinkauff (1874: 29) stated, to the intersection of axial growth lines and the ridges between spiral striae.

The ground color of the last whorl of *Conus*

sp. is yellow, orange yellow, or orange. The range in lightness and saturation is indicated by the following ISCC–NBS colors of the specimens shown in Figure 4: moderate yellow (*d,b*); moderate orange yellow (*c*); dark orange yellow (*i,j*); strong orange yellow (*a,b*); moderate orange (*g,k*); deep orange (*e,f*) (Kelly and Judd, 1955).

Conus sp. agrees in other shell characteristics, except spire elevation, with the diagnosis and holotype of *C. cumingii* (in British Museum, Natural History). The periostracum of *Conus* sp. is thin, yellowish-brown, and may bear projecting hairs on ridges corresponding to the

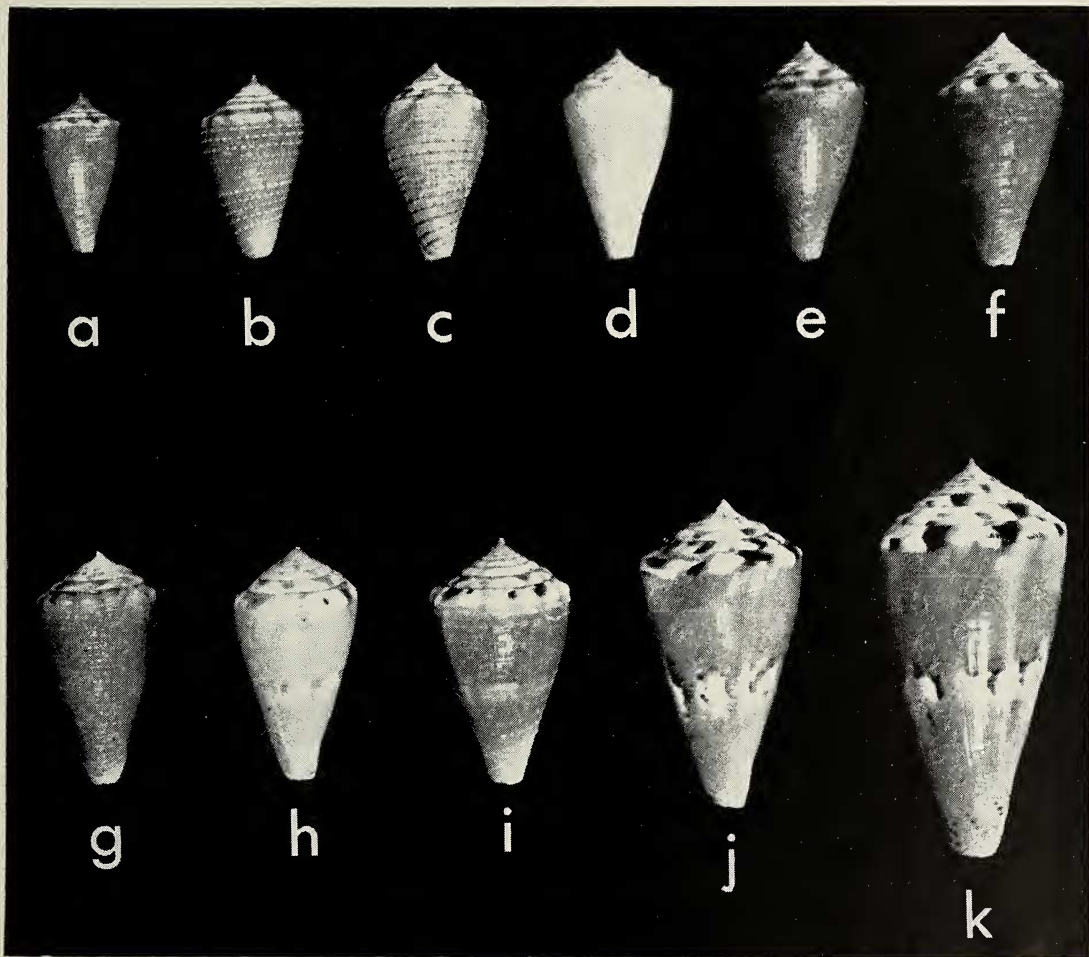


FIG. 4. *Conus* sp. cf. *C. cumingii* Reeve. Collected by Pele Expedition, off Keehi Lagoon, Oahu, 70–200 m. *a*, 16.5 × 9 mm; *b*, 19 × 11 mm; *c*, 20 × 11 mm; *d*, 21 × 12 mm; *e*, 22 × 12 mm; *f*, 24 × 13 mm; *g*, 24 × 13 mm; *h*, 24 × 13 mm; *i*, 25 × 15 mm; *j*, 31 × 17 mm; *k*, 40 × 19.5 mm.

spiral lines. In life, the foot of *Conus* sp. is buff mottled with light tan, and the anterior and posterior extremities are tinged with light vermillion. The siphon is light vermillion, mottled with small darker blotches. The rostrum and tentacles are pale buff. The periostracum and color of the soft parts of *C. cumingii* are unknown.

We do not assign *Conus* sp. (Fig. 4) with certainty to *C. cumingii*. It approaches the diagnosis and holotype of that species more closely than to that of any other known to us. It would be inadvisable to describe *Conus* sp. as new, since we have not been able to study in detail the more than 2,700 nominal species of *Conus* to ensure that it has not previously been described. To help solve problems of this type, one of us (A.J.K.) has begun a study of the type specimens and identity of the described species of *Conus*, in chronological order.

ADDITIONAL SPECIES KNOWN IN HAWAII ONLY FROM COLLECTION OF EMPTY SHELLS

Conus aurisiacus Linnaeus

Conus aurisiacus Linnaeus, 1758. Syst. Nat., ed. 10, p. 716.

The Pele Expedition dredged three fragments of shells of *C. aurisiacus* in Aug 1959. Two pieces were obtained on mud and coral rubble substratum in 110 m between Maui and Lanai. The other was obtained on sand and coral rubble in 100 m off Keehi Lagoon, Oahu.

Conus sp. cf. *C. granifer* Reeve Fig. 5

Conus granifer Reeve, 1849. Conch. Icon. 5: suppl. pl. 7, sp. 272.

The Pele Expedition dredged three fresh but empty shells, agreeing in several respects with the diagnosis and holotype of *C. granifer*, in 150–210 m off Keehi Lagoon, Oahu, in Aug and Sep 1959. In addition, two similar specimens from off Kauai (USNM 190416) and Oahu (USNM 338572) are in the U.S. National Museum.

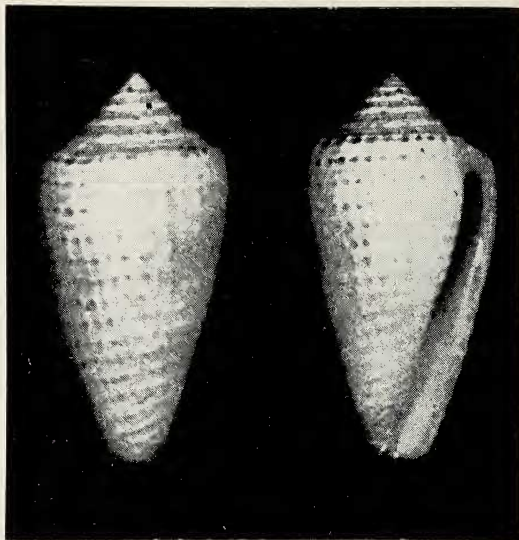


FIG. 5. *Conus* sp. cf. *C. granifer* Reeve. Collected by Pele Expedition, off Keehi Lagoon, Oahu, 150–200 m; 23 × 11.5 mm.

The Hawaiian specimens (Fig. 5) agree with the diagnosis and holotype of *C. granifer* (in British Museum, Natural History) in size, shape of last whorl and spire, granose ornamentation of last whorl, and white ground color. They differ in color pattern, *C. granifer* being tinged with light brown at the base and apex, and the Hawaiian specimens having distantly spaced moderate yellow markings on the spire and two faint, broad, spiral bands of the same color on the last whorl. The color pattern thus resembles that of *C. suturatus*, and it is just possible that the specimens under discussion are unusually shaped and ornamented individuals of that species.

Conus luteus Sowerby

Conus luteus Sowerby, 1833, Conch. Illus., pt. 25, figs. 8, 8*.

The Pele Expedition dredged one intact but empty shell and one fragment of a recently dead specimen of *C. luteus* on a mud and coral rubble substratum in 110 m off Lahaina, Maui, in Aug 1959. The intact specimen measures 27 × 11.5 mm.

TABLE 1
MAXIMUM SIZE OF SPECIES OF *Conus* IN HAWAII

SPECIES	PREVIOUS LENGTH × WIDTH (mm) *	PREVIOUS LENGTH × WIDTH (mm) *	REFERENCE
<i>C. acutangulus</i> Lamarck.....	30	32 × 15.5	fossil; Honolulu Harbor dredging, 1960; Children's Museum of Honolulu
<i>C. catus</i> Hwass in Bruguière.....	40	48 × 29.5	Kauai; Muséum National d'Histoire Naturelle, Paris
<i>C. chaldaeus</i> (Röding)	44	49 × 27	Kahuku, Oahu; coll. C.S.W.
<i>C. marmoreus</i> Linnaeus.....	139	142	Maalaea Bay, Maui; coll. Mrs. J. Kern
<i>C. pennaceus</i> Born.....	82	86 × 46	Waikiki, Oahu; 1 m; Children's Museum of Honolulu
<i>C. reiifer</i> Menke.....	50	69 × 40	off Rabbit I., near Oahu; 8 m; coll. C.S.W., 1961
<i>C. spiceri</i> Bartsch and Rehder.....	110	139 × 74	Lahaina, Maui; coll. H. Hall, Jr.
<i>C. striatus</i> Linnaeus.....	120 × 53	125 × 61	Waimanalo, Oahu; 8 m; coll. C.S.W., 1959
<i>C. textile</i> Linnaeus.....	100	128 × 66	subfossil; Kapaa, Kauai; coll. W. R. Haas, 1959

* Data from Kohn, 1959.

TABLE 2
MAXIMUM DEPTH OF SPECIES OF *Conus* IN HAWAII

SPECIES	PREVIOUS DEPTH (m) *	NEW DEPTH (m)	NEW REFERENCE
<i>C. abbreviatus</i> Reeve.....	—	50–100	off Keehi Lagoon, Oahu; Pele Exped., May 1959
<i>C. marmoreus</i> Linnaeus.....	16	50–90	off Keehi Lagoon, Oahu; Pele Exped., Aug 1959
<i>C. moreleti</i> Crosse.....	"several"	30–50	off Keehi Lagoon, Oahu; Pele Exped., Aug 1959
<i>C. obscurus</i> Sowerby.....	"several"	15–25	off Keehi Lagoon, Oahu; Pele Exped., Aug 1959
<i>C. pertusus</i> Hwass in Bruguière.....	50	90	off Keehi Lagoon, Oahu; Pele Exped., May 1959
<i>C. sponsalis</i> Hwass in Bruguière...	—	40–100	off Keehi Lagoon, Oahu; Pele Exped., May 1959
<i>C. vexillum</i> Gmelin.....	50	70	off Ewa, Oahu; Pele Exped., June 1959

* Data from Kohn, 1959.

SUMMARY

The number of species of the gastropod genus *Conus* known from more than one individual collected alive in the Hawaiian archipelago remains 33.

C. eugrammatus Bartsch and Rehder, erroneously placed in synonymy under *C. acutangulus* Lamarck by Kohn (1959), is now considered to be a valid species but is not known with certainty to have been collected alive in Hawaii.

One of two specimens identified as *C. capitaneus* Linnaeus by Kohn (1959) is actually *C. vexillum* Gmelin. *C. capitaneus* is thus known in Hawaii from only one specimen. The progressive changes from juvenile to definitive color pattern in *C. vexillum* are described.

Living specimens of *Conus* sp. cf. *C. cumingii* Reeve have been collected by the Pele Expedition since publication of the earlier paper.

The Pele Expedition also collected empty shells or fragments of three additional species not previously known from Hawaii, *C. aurisiacus* Linnaeus, *C. sp. cf. C. granifer* Reeve, and *C. luteus* Sowerby.

Conus abbreviatus Reeve, formerly considered endemic to the Hawaiian Islands, has been collected alive on Fanning Island, Line Islands.

New information on the appearance of soft parts, often useful in field identification, is reported for 10 species.

Recent collections have established larger sizes of nine species (Table 1) and occurrence in greater depths of seven species (Table 2) than previously reported.

ACKNOWLEDGMENTS

A National Science Foundation grant (G-8859) supported this work. We are grateful to Dr. Harald A. Rehder and to Dr. Yoshio Kondo for providing working facilities and access to specimens in the U.S. National Museum and in the Bernice P. Bishop Museum, respectively. The Pele Expedition, under the auspices of the Bishop Museum, was made possible by the generosity of Mrs. Mary Eleanor King. Mr. Harold G. Jewell kindly permitted examination of his extensive collection from the Line Islands.

ERRATA IN KOHN, 1959

P. 381, col. 2, line 11, *add* Fig. 15 in Plate 1.

P. 382, col. 1, line 1, *for* absolutely, *read* obsoletely.

P. 397, col. 2, line 18: quite possibly the specimens of *C. aureus* referred to were not collected in the Hawaiian Islands.

P. 399, col. 2, line 31, *for* 586-787, *read* 586-757.

P. 399, col. 2, line 35, *for* 1778, *read* 1788.

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